



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

RBT18520
Job Sheet 193879



Part No: RBT18520

Job Qty: 1 pcs

Part Name: Main Rotor Damper Load Test Device



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 4/24/19

Job Tracking No:

Due Date: 5/21/19

Created By: Marie Lajeunesse

Type: SOLD

Description: *order 14925*

Note: DWG RBT18520 Rev Q IPP REV A 18.02.07 NEW ISSUE RQ VERIFIED BY DP/IPP Rev. B 19.02.22 drawing revision DP Verify DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	Small Fab - 1	1 pcs	5/21/19		0.00	0.33	Small Fab - 1		DAS 71 9-89 <i>9-5-2</i>
							Small Fab - 2		
							Small Fab - 3		
							Small Fab - 4		
							Small Fab - 5		
							Small Fab - 6		
							Small Fab - 7		
110	QC 5	1 pcs	5/21/19		0.00	0.00	QC 5 - 10		DAS 71 9-89 MAY 02 2019 40 <i>19-5-4</i>
							QC 5 - 12		
							QC 5 - 17		
							QC 5 - 18		
							QC 5 - 19		
							QC 5 - 22		
							QC 5 - 24		
							QC 5 - 3		
							QC 5 - 43		
							QC 5 - 49		
							QC 5 - 51		
							QC 5 - 58		
							QC 5 - 68		
							QC 5 - 9		
							QC 5 - 50		
							QC 5 - 30		
							QC 5 - 40		
120	External Load - 2 - B4B	1 pcs	5/21/19		0.00	1.00	External Load - 1 - B4B		
							External Load - 2 - B4B		
							External Load - 3 - B4B		
125	QC 5	1 pcs	5/21/19		0.00	0.00	QC 5 - 10		DAS 71 9-89
							QC 5 - 12		
							QC 5 - 17		



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Container No: S177332



Part: RBT18520

Job No: 193879

Serial No/Batch: S177332

Revision: Q

Inspector:

Exp Date:

Instructions:

Date: 05/02/19

				QC 5 - 18	
				QC 5 - 19	
				QC 5 - 22	
				QC 5 - 24	
				QC 5 - 3	
				QC 5 - 43	
				QC 5 - 49	
				QC 5 - 51	
				QC 5 - 58	
				QC 5 - 68	
				QC 5 - 9	
				QC 5 - 50	
				QC 5 - 30	
				QC 5 - 40	
					DAS MAY 06 2019 40 9-89
130	Packaging 3-1 - Stock - B4B	1 pcs	5/21/19	0.00 0.00	Packaging 3 - 1 - B4B
					Packaging 3 - 2 - B4B
					Packaging 3 - 3 - B4B
					Packaging 3 - 4 - B4B
					Packaging 3 - 5 - B4B
					Packaging 3 - 6 - B4B
					Packaging 3 - 7 - B4B
					Packaging 3 - 8 - B4B
					Packaging 3 - 9 - B4B
					Packaging 3 - 10 - B4B
					Packaging 3 - 11 - B4B
					Packaging 3 - 12 - B4B
					Packaging 3 - 13 - B4B
					Packaging 3 - 14 - B4B
					Packaging 3 - 15 - B4B
					Packaging 3 - 16 - B4B
					Packaging 3 - 17 - B4B
					Packaging 3 - 18 - B4B
					Packaging 3 - 19 - B4B
					Packaging 3 - 20 - B4B
					Packaging 3 - 21 - B4B
					Packaging 3 - 22 - B4B
					Packaging 3 - 23 - B4B
					Packaging 3 - 24 - B4B
					Packaging 3 - 25 - B4B
					Packaging 3 - 26 - B4B
					Packaging 3 - 27 - B4B
					Packaging 3 - 28 - B4B
					Packaging 3 - 29 - B4B
					Packaging 3 - 30 - B4B
					Packaging 3 - 31 - B4B
					Packaging 3 - 32 - B4B
					Packaging 3 - 33 - B4B
					Packaging 3 - 34 - B4B
					Packaging 3 - 35 - B4B
					Packaging 3 - 36 - B4B
					DAS 21 9-89
140	QC 21 - FG	1 pcs	5/21/19	0.00 0.00	QC 21 - FG - 21
					QC 21 - FG - 70
					QC 21 - SA - 53
					MAY 08 2019

Part Op **100** - Assemble as per drawing. See note 2,3,4, and 5.
 Descriptions: **110** - (QC5- Inspect part completeness to step on W/O)

120 - 1-Load test as per drawing sheet 15. 2-Engrave -11 as per drawing sheet 11 note 1 using MARKTRONIC engraver.

130 - The tool must be packaged with a desiccant bag into a tight fitting sealed plastic bag as per DWG.

140 - (QC21- Final Inspection - Work Order Release)

R6001A

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
10164	LG. Pistol Case, Plastic	1 Ea (1 ea)	100-Small Fab - 1	X S151056 COR 262
20625A914	Dial Indicator Atchmnt Agd-2 Dial	1 Ea (1 ea)	100-Small Fab - 1	X S131311 GA060
5416K41	SS Hose Clamp 3.5" Dia.	1 Ea (1 ea)	100-Small Fab - 1	X S044125 GA045
90108A417	Flat Washer 3/8" Plated	2 Ea (2 ea)	100-Small Fab - 1	X S044121 GA062
91259A583	Shoulder Screw 5/16" Shoulder Dia, 1" L Shoulder, 1/4"-20 Thread	1 Ea (1 ea)	100-Small Fab - 1	X S131313 GA070
92845A245	18-8 Ss Extended (Dog) Point Socket Set Screw 10-24 Thread, 1/2" Length	2 Ea (2 ea)	100-Small Fab - 1	X S044124 54
93839A815	Hex Nut 3/8-24 Unf	2 Ea (2 ea)	100-Small Fab - 1	X S044120 56
97135A210	Nylon Lock Nut, 1/4-20	1 Ea (1 ea)	100-Small Fab - 1	X S175979 58
98404A250	Quick Release Pin, Ø5/16 X 1	1 Ea (1 ea)	100-Small Fab - 1	X S175981 43
98404A959	Quick Release Pin, Ø1/4 X 1	1 Ea (1 ea)	100-Small Fab - 1	X S175993 GA
AGD-2	1" Dial Indicator 0" to 1" Range	1 Ea (1 ea)	100-Small Fab - 1	X S118192 78
RBT18520-1	Lift Device Frame	1 pcs (1 ea)	100-Small Fab - 1	X S132092 145B
RBT18520-11A	Weight Assembly	1 pcs (1 ea)	100-Small Fab - 1	X S140578 "
RBT18520-15	Clevis Bracket	1 pcs (1 ea)	100-Small Fab - 1	S049449 146
RBT18520-16	Indicator Bracket	1 pcs (1 ea)	100-Small Fab - 1	S051546 146
RBT18520-5	Weldment	1 pcs (1 ea)	100-Small Fab - 1	S107082 145B
RBT18520-7	Pivot Bar Weldment	1 pcs (1 ea)	100-Small Fab - 1	S053641 146
RBT18520-9A	Extension Assembly	2 pcs (2 ea)	100-Small Fab - 1	S136174 145B

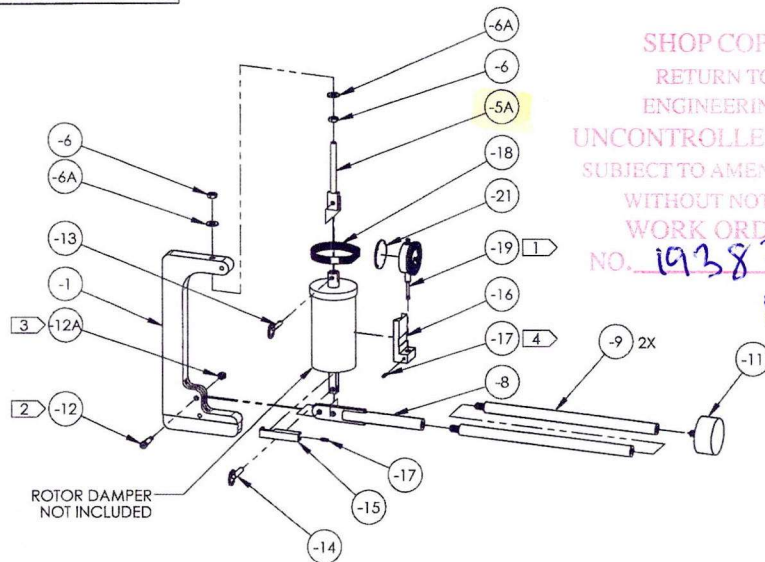
Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-Small Fab - 1	10164	1	5	0
	20625A914	1	4	0
	5416K41	1	15	0
	90108A417	2	82	0
	91259A583	1	8	0
	92845A245	2	15	0
	93839A815	2	41	0
	97135A210	1	0	0
	98404A250	1	0	0
	98404A959	1	0	0
	AGD-2	1	3	0
	RBT18520-1	1	6	0
	RBT18520-11A	1	1	0
	RBT18520-15	1	1	0
	RBT18520-16	1	1	0
	RBT18520-5	1	1	0
	RBT18520-7	1	1	0
	RBT18520-9A	2	3	0

Part Specifications

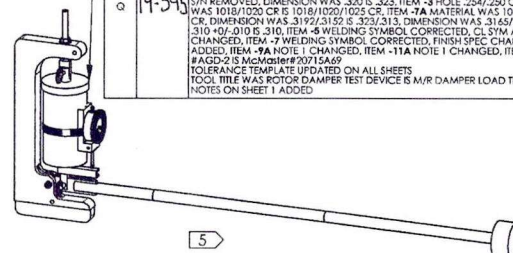
Specifications could not be found.

This drawing, specifications, and concepts contained here in are the sole property of Dart Aerospace, and may not be reproduced or used in any fashion without the prior written permission of Dart Aerospace Systems, Inc.



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 193879 M.L.S.
19-04-24

REVISIONS						
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED	
1		-10 WAS CUT STUD; -16 TOLERANCE REDUCED TO ENSURE CLEARANCE FOR DIAL INDICATOR.	8/17/2000	-	-	
2		CUT -1 FRAME BACK TO .375 NEXT TO Ø5/16 HOLE FOR CLEARANCE.	10/30/2001	-	-	
3		CHANGED -1 SCREW HOLE FROM .75X.125 TO .3125; -11 ADDED MACHINE TO WEIGHT & SEE TESTING & ENGRAVING; ALSO CREATED A TESTING & WEIGHT CERTIFICATION DWG.	8/16/2007	WP	RW	
4		COMBINED NINE FILES INTO ONE; INSTALLED NEW TITLE BLOCK, BOM, & REV. TABLE; CREATED CUSTOMER NEW DWGS; SEPARATED -5 THREADED ROD & -5 TOP BOLT TO -5 TOP BOLT WELDMENT & -5 ALL THREAD; SEPARATED -7 TAB & -7 PIVOT BAR TO -7 PIVOT BAR WELDMENT & -7A PIVOT BAR TAB; CHANGED -12 Ø5/16X1 PIN TO -12 SCREW & -12A NYLOCK NUT; CHANGED STAKE OR PIN -10 TO USE LOCITE 609.	11/29/2007	WP	RW	
5		ADDED SUPPORT SUPPORT WEIGHT NOTE TO CUSTOMER INSTRUCTIONS, AND -9 MUST REMAIN LEVEL TO TESTING INSTRUCTIONS, PER DAVE'S NOTES.	11/29/2007	WP	DW	
6		CHANGED -1 PIVOT HOLE FROM Ø.257 TO Ø5/16 REAMED; -7a PIVOT HOLE FROM Ø.257 TO Ø5/16 REAMED; AND -12 FROM SOCKET HEAD CAP SCREW 1/4-20 X 1-1/2 TO SOCKET HEAD SHOULDER BOLT Ø5/16 X 1, APPLIED PHANTOM BOXES TO PARTS FOR CLARITY, UPDATED CUSTOMER DWGS.	6/17/2009	WP	G.E.	
6A		CORRECTED DIM P/N -5a FROM 1/2-24 UNF.	7/30/2009	RJC		
7		CHD P/N -10 SETSCREW DEPTH TO .75 PER G.E.	9/28/2009	RJC		
8		CHANGED INSIDE HOLE ON -7A FROM Ø.313 TO REAM Ø.3125. ALSO CORRECTED ERROR IN BOM -14 WAS REED #FFSC-4-10, NOW #FFSC-5-10R.	9/28/2009	WP		
8A		CHD Ø.375 REAMED TO THRU PER G.E.	8/24/2010	WP	G.E.	
8B		ADDED CUSTOMER INFO TO MANUFACTURING DWGS. PER R.W.	11/2/2010	RJC	RW	
8C		ADDED -19 TO SHOW MODIFICATION OF DIAL INDICATOR AND MOUNTING PER R.W.	7/12/2011	RJC	RW	
8D		CHD TITILELOCK TOLERANCES FROM .XXX ±.005 & .XX ±.01 PER G.E.	2/15/2012	RJC	RW	
9		MOVED ALL PARTS TO SEPARATE SHEETS. -1 ADDED Ø.25 TOOLING HOLE. -16 ADDED R.25 LEFT .30 DIM TO THEORETICAL POINT.	8/7/2013	RJC	DW	
10	16-0096	UPDATED TO NEW STANDARDS. ADDED CALIBRATION NOTE. -1 CHD DIMS WAS Ø.375 THRU IS Ø.375 P.120, WAS REAM Ø.3125 IS Ø.3125-3192 THRU ALL (S.F. -12), WAS 1.00 IS 2K 1.00, WAS 1.125 IS .13. -3 CHD MAT'L WAS 1018 IS 1018/1020 CR. CHD DIM WAS Ø.250 S.F. -13 IS Ø.250-.254 THRU ALL (S.F. -13). -5A CHD DIMS WAS 3/8-24 UNF IS (3/8-24 UNF-2A), WAS 3.625 IS 3.63, ADDED B/O #9280A109. -4 ADDED B/O #92839A815. -AA ADDED B/O #9109A417. -7 DELETED SAND TO FIT CALLOUT. -7A CHD MAT'L WAS 1018 IS 1018/1020 CR. CHD DIMS WAS Ø.313 S.F. -14 IS Ø.3125-3165 THRU ALL (S.F. -14), WAS REAM Ø.313 IS Ø.3125-3192 THRU ALL (S.F. -12), WAS .310 IS .310 +.000-.010 (S.F. -8), WAS .500 IS 2K .500. -8 ADDED RADIUS TO END OF SLOT. CHD DIMS WAS .188 WALL S.19. WAS .315 SLOT S.F. -7A IS .315 +.010-.000 (S.F. -7A). -9 CHD DIM WAS .188 WALL S.19. -9A ADDED TO BOM. -10 ADDED B/O #91375A673. -11 REMOVED RB LOGO, ACTUAL WEIGHT, AND OPERATORS INITIALS FROM ENGRAVE NOTE. -11A ADDED TO BOM. -12A ADDED B/O #95615A120. -18 CHD DIM WAS R.125 IS FULL R. -18 CHD DIMS WAS R.125 IS FULL R. WAS 10-24 UNC IS 10-24 UNC-20 P.1.86. -17 ADDED B/O #9584A245. -18 ADDED B/O #5416A41.	8/4/2016	DPD	JAG	
11	17-0069	-9A CHD LOCITE NUMBER WAS 609 IS 262. -11 CORRECTED SPELLING ON ENGRAVING WAS "CALIBRATED" IS "CALIBRATED". -11A CHD LOCITE NUMBER WAS 609 IS 262. -19 WAS MODIFIED IS B/O. DELETED DWG. -21 ADDED TO BOM QTY 1. -23 ADDED TO BOM QTY 1.	3/22/2017	DPD	JAG	
11	17-595	ITEM -8 MATERIAL WAS CDS IS A513 TYPE 5 DOM TUBING, DIMENSION WAS .315 ±.010/0 IS .323, DIMENSION WAS .19 IS .188, ITEM -9 MATERIAL WAS CDS IS A513 TYPE 5 DOM TUBING, FINISH SPEC CHANGED, DIMENSION WAS .19 IS .188. -11 MATERIAL WAS BRASS IS BRASS 360, ITEM -5A MATERIAL WAS MCMaster-CARR #9280A109 IS MCMaster-PROZ2A109, ITEM -12A MATERIAL WAS MCMaster-CARR #95615A120 IS MCMaster-#97135A210, ITEM -13 MATERIAL WAS ESSENTIA COMPONENTS #FFSC-10R IS MCMaster-#9840A959, ITEM -14 MATERIAL WAS ESSENTIA COMPONENTS #FFSC-10R IS MCMaster-#9840A959, ITEM -15 AND -16 MATERIAL WAS 6061/7075, DIMENSION .375 CHANGED FOR .377 ±.005/0, ITEM -1 ENGRAVING "MADE IN USA" AND 5/8" REMOVED, DIMENSION WAS .300 IS .302, ITEM -3 HOLE .254/252 CHANGED FOR .257, MATERIAL WAS 1018/1020 CR IS 1018/1020/1025 CR, ITEM -7A MATERIAL WAS 1018-1020 CR IS 1018/1020/1025 CR, DIMENSION WAS .3192/3192 IS .323/313, DIMENSION WAS .3165/3125 IS .328, DIMENSION WAS .310 ±.010 IS .310, ITEM -6 WELDING SYMBOL CORRECTED, CL SYM ADDED, SPEC FOR FINISH CHANGED, ITEM -7 WELDING SYMBOL CORRECTED, FINISH SPEC CHANGED, CL SYM SYMBOL ADDED, ITEM -9A NOTE 1 CHANGED, ITEM -11A NOTE 1 CHANGED, ITEM -19 WAS PAC-WEST #A02-215 MCMaster-#20715A699 TOLERANCE TEMPLATE UPDATED ON ALL SHEETS TOOL TITLE WAS ROTOR DAMPER TEST DEVICE IS M/R DAMPER LOAD TEST DEVICE NOTES ON SHEET 1 ADDED	2/19/2019	VM	VM	



- NOTE:
- 1) CALIBRATED UPON CUSTOMER REQUEST.
 - 2) APPLY RED THREADLOCKER LOCITE 263/262 ON THREADS OF ITEM -12 THEN ASSEMBLE WITH ITEM -12A AND REMOVE EXCESS
 - 3) TORQUE ITEM -12A TO 60-85 IN-LBS
 - 4) INSTALL ITEM -17 HAND TIGHT
 - 5) THE TOOL ASSY MUST BE PACKAGED WITH A DESICCANT BAG INTO A TIGHT FITTING SEALED PLASTIC BAG

ASSY QTY	ASSY QTY	ASSY QTY	ASSY QTY	B/O	Part #	UNIT QTY	Description	Material	B/O INFORMATION OR SPECIFICATIONS	PG.
					-1	1	FRAME	6061/7075		2
					-3	1	TOP BOLT TAB	1018/1020/1025 CR		3
			X		-5	1	TOP BOLT WELDMENT			4
					-5A	1	ALL THREAD	STEEL	3/8-24 (McMaster#90322A131) MODIFIED	5
				B/O	-6	2	JAM NUT	STEEL	3/8-24, GRADE 8 (MCMaster-CARR #9383A815)	1
				B/O	-6A	2	FLAT WASHER	STEEL	Ø3/8 (MCMaster-CARR #9108A417)	1
			X		-7	1	PIVOT BAR WELDMENT			6
					-7A	1	PIVOT BAR TAB	1018/1020/1025 CR		7
					-8	1	TUBE	A513 TYPE 5 DOM TUBING		8
					-9	1	EXTENSION	A513 TYPE 5 DOM TUBING		9
			X		-9A	2	EXTENSION ASSEMBLY			10
				B/O	-10	1	SOCKET HEAD SET SCREW	STEEL	7/16-24 X 1-1/2 (MCMaster-CARR #91375A673)	10 & 12
					-11	1	WEIGHT	BRASS 360		11
			X		-11A	1	WEIGHT ASSEMBLY			12
				B/O	-12	1	SOCKET HEAD SHOULDER BOLT	STEEL	1/4-20 X 7/16, Ø5/16 X 1 SHOULDER (MCMaster-CARR #91259A583)	1
				B/O	-12A	1	NYLON LOCK NUT	STEEL	1/4-20 (McMaster#97135A210)	1
				B/O	-13	1	QUICK RELEASE PIN	S.S.	Ø1/4 X 1 (McMaster#9840A959)	1
				B/O	-14	1	QUICK RELEASE PIN	S.S.	Ø5/16 X 1 (McMaster#9840A959)	1
					-15	1	CLEVIS BRACKET	6061/7075		13
					-16	1	INDICATOR BRACKET	6061/7075		14
				B/O	-17	2	SOCKET HEAD SET SCREW (DOG POINT)	S.S.	#10-24 X 1/2 (MCMaster-CARR #92845A245)	1
				B/O	-18	1	HOSE CLAMP	S.S.	Ø3-1/16 TO Ø4 X 1/2 (MCMaster-CARR #5416A41)	1
				B/O	-19	1	1 in. DIAL INDICATOR		(McMaster#20715A699) Δ	15
				B/O	-21	1	FLAT BACK FOR DIAL INDICATOR		FOR AGD GROUP 2 DIAL INDICATOR (MCMaster-CARR #20625A914)	1
				B/O	-23	1	LARGE PISTOL CASE	PLASTIC	(RSR GROUP #10164)	N/S
ASSY -1A	ASSY -9A	ASSY -7	ASSY -5	B/O	DAMP ER					

TITLE M/R DAMPER LOAD TEST DEVICE		REV Q
DWG NO. RBT18520		
MAT'L TREAT FINISH SPEC	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES XXX ± .005 FRACTIONS 5/16 XX ± .01 ANGLES ±1° X ± .1 SURFACES ±12.5	
DRAWN BY: COLE	1. BREAK ALL SHARP EDGES .015 X 45° OR .015R	
CHECKED: MACKOVJAK	2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
APPROVED: ANDERSON	3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009	
SA APPR: LINDSAY	USED ON MODEL	
APPROVED: [Signature]		
SCALE N/A	DATE 8/17/2000	SHEET 1 OF 17

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐			
Date :	Sequence #:	QTY Affected :		MRB (QS1042)	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor		
			QC / QA Coordinator		
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Presservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread			
Other/Details:					